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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,590	01/24/2002	Tat Hung Tong	VTN-576	4694

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EXAMINER

TESKIN, FRED M

ART UNIT PAPER NUMBER

1713

DATE MAILED: 12/04/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. 590
10/056,850

Applicant(s)

Tong

Examiner

Fred Teskin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three (3) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 and 19 is/are allowed.
- 6) ☒ Claim(s) 1, 4-9, 13, and 18 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 10, 12, 14-17, and 20 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ | 6) <input type="checkbox"/> Other: |

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1. Claims 1-20 are currently pending and under examination.
2. The disclosure is objected to because of the following informalities: appropriate serial numbers should be provided for the two copending applications identified by attorney docket number on page 4 of the application as filed.
3. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim is inaccurate due to a clerical error: "axobisisobutyronitrile" is misspelled in line 4. Correction is required.
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4-9 and 18 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over either of Kuyama et al 3383336 and Tsuno 5880240.

The rejected claims are drawn to a shape memory polymer comprising a reaction product of styrene, a vinyl compound other than styrene, a multifunctional crosslinking agent (e.g., divinyl benzene, per claim 5) and an initiator.

The cited references each disclose polymer comprising the requisite reaction product.

Thus, Kuyama et al exemplify the preparation of resinous copolymer from a reaction mixture including styrene, divinyl benzene, a free radical initiator (benzoyl peroxide or azobisisobutyronitrile) and as the other vinyl compound, acrylonitrile alone (Examples 1, 3-6, 8 and 9) or together with

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methystyrenes (Examples 10-11), methylacrylate (Example 17) or methylmethacrylate (Examples 18). In Tsuno, porous resin is prepared by polymerizing a reaction mixture including styrene, divinyl benzene, a specific vinyl bezyloxyalkane derivative and the same azo initiator (Examples 1-15).

Moreover, in both references the reaction mixtures were polymerized under conditions of time, temperature and pressure within the recitations of claim 18. In this regard, note the polymerization temperature and time as reported in Examples 1, 7 and 8-11 of Kuyama et al and in Examples 1 and 7 of Tsuno, and the apparent use of atmospheric pressure to conduct the reactions; i.e., no affirmative pressurization step is mentioned in either reference.

In view of the identity of polymer composition and reaction conditions, the "shape memory" property recited in claim 1 but not disclosed by Kuyama et al or Tsuno is reasonably presumed to inhere in the copolymer products of the aforementioned reference examples.

Since this situation involves a 102(b)/103 rejection where the property or characteristic relied upon for patentability may be inherent in the prior art and since the Office obviously does not have facilities to make and test claimed and prior art products, the burden properly shifts to applicant to show that the property

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or characteristic recited in the claims represents an unobvious difference. *In re Best*, 195 USPQ 430 (CCPA 1977).

With respect to claim 9, the use of a cationic initiator to make the reaction product is not seen to distinguish the final polymer product in any unobvious respect over the polymer products of Kuyama et al or Tsuno, made via free radical initiation. It is well settled that product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). Instantly, the prior art products and the claimed product appear to be essentially the same, as both are the result of subjecting the same vinyl monomers and crosslinking agent to similar reaction conditions, i.e., polymerization time, temperature and pressure.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Watanabe is cited as pertinent in its disclosure of a shape memory molded article prepared from a crosslinkable polymer composition comprising a noncrystalline polymer (A), which may be a polystyrene-based resin or elastomer (note col. 1, lines 29-32 and col. 17, claim 3).

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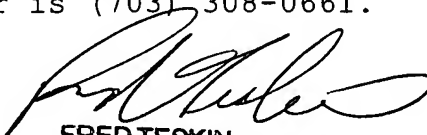
8. Claims 2, 3, 10, 12, 14-17 and 20 are objected to as being dependent on a rejected base claim but would be allowable if rewritten in independent form to include all the limitations of the base claim and any intervening claim. Claim 13 would be allowable if amended or rewritten to overcome the rejection under 35 U.S.C. § 112 set forth in this Office action and to include all the limitations of the base claim and any intervening claim.

9. Claims 11 and 19 are allowable over the prior art of record.

10. Any inquiry concerning this communication should be directed to Examiner F. M. Teskin whose telephone number is (703) 308-2456.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (703) 308-2450. The appropriate fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 (non-after finals) and (703) 872-9311 (after-finals).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.


FRED TESKIN
PRIMARY EXAMINER
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FMTeskin/11-30-02